## Kelly, Joseph

**From:** Bridgford, Dale (DEQ) <BRIDGFORDD@michigan.gov>
**Sent:** Tuesday, September 05, 2017 6:50 AM
**To:** Graham Crockford; Metz, Stacy (SMetz@trcsolutions.com); Kelly, Joseph
**Cc:** Smith, Jason (Jason.Smith@tecumseh.com); Quackenbush, Peter (DEQ); John McCabe; Farrelly, Jack (DEQ)
**Subject:** FW: Questions Regarding June 27, 2017 Letter titled " Implementation of the Mixing Zone – Clarification; Former Tecumseh Products Company; MID 005 049 440

Graham and Stacy,

In clarification to the Mixing Zone Implementation letter, Table 1 applies to groundwater venting into the wetland material, both from downward infiltration from the seeps daylighting at the toe of the bluff or wicking upward from the aquifer underlying the wetland material. The porewater samples collected from the pushpoint samplers at depths greater than 12 inches need to meet the numbers in Table 1. Table 2 applies to groundwater venting directly to the River Raisin and the overland flow from the seeps that discharges directly to the River Raisin.

The application of the Drinking Water restriction is due to proximal downstream municipalities that utilize the River Raisin as a drinking water source, however the wetland is not a drinking water source. The final chronic values in Table 1 have been modified to Human Cancer Values for a Non-Drinking Water Source (highlighted in yellow). Please use this Revised Table 1 in place of the Table 1 in my June 27, 2017 letter.

**Table 1-Revised**

| Parameter | Final Chronic Value (g/L) | Reported Worst Case Maximum Site Concentration (g/L) |
|---|---|---|
| Acetone | 1,700 | 13,000 |
| 2-Butanone (Methyl ethyl ketone) | 2,200 | 17,000 |
| 1,1-Dichloroethane | 740 | 2,100 |
| 1,1-Dichloroethene | 130 | 920 |
| cis-1,2-Dichloroethene | 620 | 8,300 |
| Ethylbenzene | 18 | 9,300 |
| Tetrachloroethene | 60 | 76,000 |
| Toluene | 270 | 85,000 |
| 1,1,1-Trichloroethane | 89 | 8,500 |
| Trichloroethene | 200 | 12,000 |
| 1,2,4-Trimethylbenzene | 17 | 64 |
| Xylene | 49 | 59,000 |
| Vinyl chloride | 13 | 2,600 |

If you have any questions, please let me know.

Thank you,

Dale

Dale R. Bridgford, Geologist
Hazardous Waste Section
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☎ **517-582-3050 (NEW NUMBER)**
New Location: **Constitution Hall, South Tower, 4th Floor, SW Corner**
Fax 517-373-4797

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**From:** Farrelly, Jack (DEQ)
**Sent:** Monday, August 28, 2017 8:55 AM
**To:** Bridgford, Dale (DEQ) <BRIDGFORDD@michigan.gov>
**Subject:** RE: Questions Regarding June 27, 2017 Letter titled " Implementation of the Mixing Zone – Clarification; Former Tecumseh Products Company; MID 005 049 440

Dale,

Yes, the Seeps table applies to anything that discharges to the wetland and the venting groundwater applies to anything to discharges to the River Raisin. Yes, drinking water levels were applied due to two drinking water intakes on the River Raisin.

Thanks,

Jack Farrelly
Aquatic Biologist
Michigan Department of Environmental Quality
Water Resources Division, Permits Section
525 West Allegan, P.O. Box 30458 Lansing, MI 48909
FarrellyJ1@michigan.gov
Phone: 517-284-5586

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**From:** Bridgford, Dale (DEQ)
**Sent:** Monday, August 28, 2017 8:47 AM
**To:** Farrelly, Jack (DEQ) <FarrellyJ1@michigan.gov>
**Subject:** RE: Questions Regarding June 27, 2017 Letter titled " Implementation of the Mixing Zone – Clarification; Former Tecumseh Products Company; MID 005 049 440

Hi Jack,

Thanks for your response and our subsequent conversation. To summarize, the “Seeps” table applies to any of the venting groundwater that will infiltrate into the wetland material, while the “Venting Groundwater” table applies to any groundwater directly discharging to the River Raisin. The “Venting Groundwater” includes groundwater that discharges from the directly from the aquifer to the river or groundwater that daylights from a spring and flows overland to the river. Is this an accurate summary?

The Drinking Water restriction is due to proximal downstream municipalities that utilize the River Raisin as a drinking water source, correct?

Thanks,

Dale

**From:** Farrelly, Jack (DEQ)
**Sent:** Monday, August 28, 2017 7:16 AM
**To:** Bridgford, Dale (DEQ) <BRIDGFORDD@michigan.gov>
**Subject:** RE: Questions Regarding June 27, 2017 Letter titled " Implementation of the Mixing Zone – Clarification; Former Tecumseh Products Company; MID 005 049 440

Dale,

Yes. Your interpretation is correct. Sorry for the delayed response.

Jack Farrelly
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**From:** Bridgford, Dale (DEQ)
**Sent:** Tuesday, August 22, 2017 2:55 PM
**To:** Farrelly, Jack (DEQ) <FarrellyJ1@michigan.gov>
**Subject:** FW: Questions Regarding June 27, 2017 Letter titled " Implementation of the Mixing Zone – Clarification; Former Tecumseh Products Company; MID 005 049 440

Hi Jack,

The consultant for the former Tecumseh Products Company questions how the "River Raisin's designation as a drinking water source affects the water quality values for the adjacent wetland which is clearly not a viable drinking water source" (quote from their e-mail below). I viewed Table 1 from your January 31st response (attached) to our venting groundwater request to apply to water daylighting at the toe of the bluff flowing overland to the River Raisin and that small portion of the water flowing beneath the wetland wicking into the wetland via capillary action as both fitting into the numbers listed in your table named "Seeps". Is my interpretation correct? If not, please let me know.

Thank you for your time,

Dale

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**From:** Crockford, Graham [mailto:GCrockford@trcsolutions.com]
**Sent:** Monday, August 21, 2017 8:26 AM
**To:** Bridgford, Dale (DEQ) <BRIDGFORDD@michigan.gov>; Metz, Stacy <SMetz@trcsolutions.com>
**Cc:** Smith, Jason (Jason.Smith@tecumseh.com) <Jason.Smith@tecumseh.com>; Kelly, Joseph (kelly.joseph@epa.gov) <kelly.joseph@epa.gov>; Quackenbush, Peter (DEQ) <QUACKENBUSHP@michigan.gov>; McCabe, John (DEQ) <MCCABEJ@michigan.gov>
**Subject:** RE: Questions Regarding June 27, 2017 Letter titled " Implementation of the Mixing Zone – Clarification; Former Tecumseh Products Company; MID 005 049 440

Hi Dale, we are working on the sampling strategy per your letter and email, but wanted to confirm if you have a response to our last question below regarding the Table 1 question.

Graham Crockford, CPG
Michigan ECR Practice Lead

gcrockford@trcsolutions.com
734.904.3304


**From:** Crockford, Graham
**Sent:** Tuesday, August 01, 2017 3:49 PM
**To:** 'Bridgford, Dale (DEQ)' <BRIDGFORDD@michigan.gov>; Metz, Stacy <SMetz@trcsolutions.com>
**Cc:** Smith, Jason (Jason.Smith@tecumseh.com) <Jason.Smith@tecumseh.com>; Kelly, Joseph (kelly.joseph@epa.gov) <kelly.joseph@epa.gov>; Quackenbush, Peter (DEQ) <QUACKENBUSHP@michigan.gov>; McCabe, John (DEQ) <MCCABEJ@michigan.gov>
**Subject:** RE: Questions Regarding June 27, 2017 Letter titled " Implementation of the Mixing Zone – Clarification; Former Tecumseh Products Company; MID 005 049 440

Dale - Thanks for the feedback. There may be still some confusion regarding Table 1. Table 1 values are for the wetland area and not the River Raisin. It doesn't make sense from our perspective that the River Raisin's designation as a drinking water source affects the water quality values for the adjacent wetland which is clearly not a viable drinking water source. If you could also check on that when you connect with WRD, we would certainly appreciate it.

Graham Crockford, CPG
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**From:** Bridgford, Dale (DEQ) [mailto:BRIDGFORDD@michigan.gov]
**Sent:** Tuesday, August 01, 2017 3:39 PM
**To:** Metz, Stacy <SMetz@trcsolutions.com>; Crockford, Graham <GCrockford@trcsolutions.com>
**Cc:** Smith, Jason (Jason.Smith@tecumseh.com) <Jason.Smith@tecumseh.com>; Kelly, Joseph (kelly.joseph@epa.gov) <kelly.joseph@epa.gov>; Quackenbush, Peter (DEQ) <QUACKENBUSHP@michigan.gov>; McCabe, John (DEQ) <MCCABEJ@michigan.gov>
**Subject:** RE: Questions Regarding June 27, 2017 Letter titled " Implementation of the Mixing Zone – Clarification; Former Tecumseh Products Company; MID 005 049 440

Stacy and Graham,

With respect to your first bullet regarding Table 1, the HCV for a Drinking Water Source are assigned because the Drinking Water program has designated the River Raisin as a protected as a drinking water source. This is a designation made by the Drinking Water Program adhered to by the Water Resources Division.

With respect to your third bullet regarding Tables1/3, that is an error on my part for the titling of that table. Table 3 only refers to the groundwater directly venting to the River Raisin, not to the seeps or the venting into the wetland.

As for your question regarding Tables 2/3, I have to pose that question to the Water Resources Division staff. I will ask them tomorrow (Wednesday) when I get back in the office.

Thanks

Dale

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**From:** Metz, Stacy [mailto:SMetz@trcsolutions.com]
**Sent:** Monday, July 10, 2017 10:29 AM
**To:** Bridgford, Dale (DEQ) <BRIDGFORDD@michigan.gov>
**Cc:** Smith, Jason (Jason.Smith@tecumseh.com) <Jason.Smith@tecumseh.com>; Crockford, Graham <GCrockford@trcsolutions.com>; Kelly, Joseph (kelly.joseph@epa.gov) <kelly.joseph@epa.gov>
**Subject:** FW: Questions Regarding June 27, 2017 Letter titled " Implementation of the Mixing Zone – Clarification; Former Tecumseh Products Company; MID 005 049 440

Dale-

Thank you for discussing the June 27, 2017 letter to Joseph Kelly of USEPA titled "Implementation of the Mixing Zone – Clarification; Former Tecumseh Products Company; MID 005 049 440" today. As requested, we have written up our questions regarding the Tables included in that letter for
you to transmit to the Water Resources Division.

- **Table 1:** The title of the second column in Table 1 is Final Chronic Value (g/L). However three of the values listed are the Human Cancer Values for a Drinking Water source (HCV-Drink) (PCE = 11 g/L, TCE = 29 g/L and vinyl chloride = 0.25 g/L) rather than the final chronic values (FCV). Given the general lack of accessibility and associated human receptors, the FCVs do seem to be the most appropriate water quality value for chronic exposure in the wetland (PCE = 190 g/L, TCE = 200 g/L and vinyl chloride = 930 g/L). Regardless, the wetland is not a viable drinking water source. If this table is intended to reference generic GSI (e.g. chronic mixing-zone based GSI criteria for a water body with no mixing) rather than FCVs, we believe, the values for these compounds should reflect Human Cancer Values for a Non-Drinking Water source (HCV- Non-Drink) (PCE = 60 g/L, TCE = 200 g/L and vinyl chloride = 13 g/L) rather than the HCV-Drink values. Note that for all other compounds the FCV is equal to the generic GSI criterion. Please confirm and clarify the appropriate chronic values for discharges of PCE, TCE and vinyl chloride to the wetland.
- **Tables 2/3:** Please clarify why methyl ethyl ketone, 1,1-dichloroethane, 1,1-dichloroethene, cis-1,2-dichloroethene, and 1,2,4-trimethylbenzene are included in Table 2 rather than Table 3 even though the reported worst case maximum site concentration for these compounds is well below the final acute value (FAV), and conversely, why xylene is listed in Table 3 when the worst case maximum site concentration is well above the FAV.
- **Tables 1/3:** The compounds listed in Table 3, "Parameters Not Likely to Exceed Water Quality Standards to **Seep or** River Raisin", are also included in Table 1 which lists parameters likely to vent to seeps and into wetland above chronic water quality standards. It seems that the Table 3 compounds should either be excluded from Table 1 or the words "Seep or" should be removed from the title of Table 3. Please clarify.

Regards,
Graham and Stacy

Stacy Metz, PE
Project Engineer

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